

H. S. John.

Rhodora

JOURNAL OF THE
NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

MERRITT LYNDON FERNALD, Editor-in-Chief

JAMES FRANKLIN COLLINS

CHARLES ALFRED WEATHERBY } Associate Editors

LUDLOW GRISCOM

Vol. 34.

March, 1932.

No. 399.

CONTENTS:

Fred Dayton Lambert. <i>C. H. Knowlton</i>	41
Notes on Flora of Matamek River District, "North Shore," Quebec. <i>P. W. Bowman</i>	48
Flora of Woodstock, Vermont	56

The New England Botanical Club, Inc.

8 and 10 West King St., Lancaster, Pa.

Room 1001, 53 State St., Boston, Mass.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of New England. Price, \$2.00 per year, net, postpaid, in funds payable at par in United States currency in Boston; single copies (if available) 20 cents. Volumes 1-8 or some single numbers from them can be supplied only at advanced prices which will be furnished on application. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be considered for publication to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than two pages of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to

M. L. FERNALD, 14 Hawthorn Street, Cambridge, Mass.

Subscriptions (making all remittances payable to RHODORA) to
Ludlow Griscom, 8 W. King St., Lancaster, Pa., or Museum of Comparative
Zoology, Cambridge, Mass.

Entered at Lancaster, Pa. Post Office as Second Class Mail Matter.

INTELLIGENCER PRINTING COMPANY
Specialists in Scientific and Technical Publications
EIGHT WEST KING ST., LANCASTER, PA.

**CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF
AMERICAN PLANTS, 1885 TO DATE.**

For American taxonomists and all students of American plants the most important supplement to the Index Kewensis, this catalogue in several ways exceeds the latter work in detail, since it lists not only the flowering plants, but ferns and other vascular cryptogams, and includes not merely genera and species, but likewise subspecies, varieties and forms. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at \$22.50 per 1000 cards.

GRAY HERBARIUM of Harvard University,
Cambridge, Mass., U. S. A.

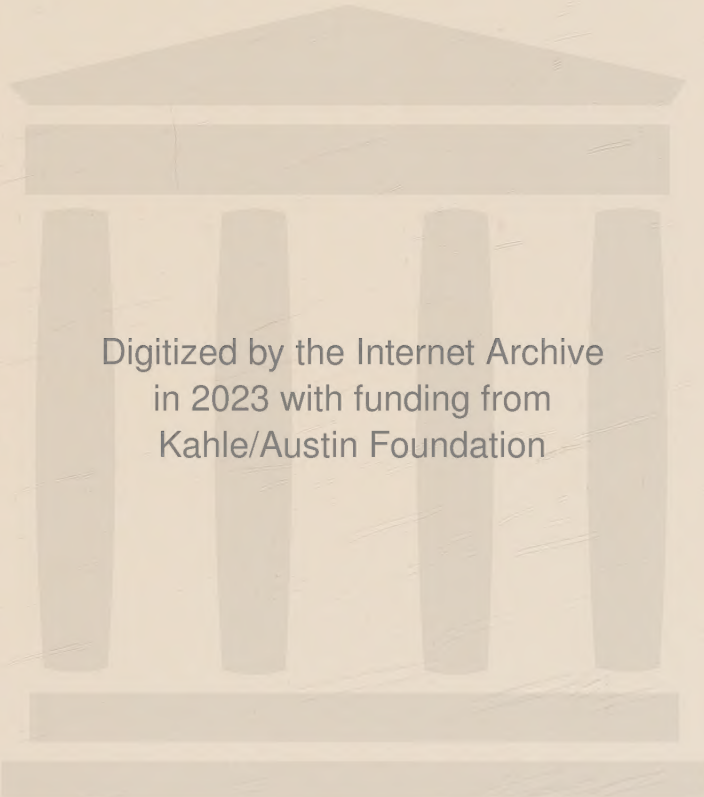
CHECK LIST OF GRAY'S MANUAL, 7th EDITION, compiled by
M. A. DAY. Leatherette. Pocket size. Invaluable for collector's
memoranda and herbarium records. Published and sold by the GRAY
HERBARIUM, Cambridge, Mass. Price postpaid 20 cts. each. Ten
copies \$1.50.

MEMOIRS OF THE GRAY HERBARIUM. A series of illustrated
quarto papers issued at irregular intervals, sold separately.

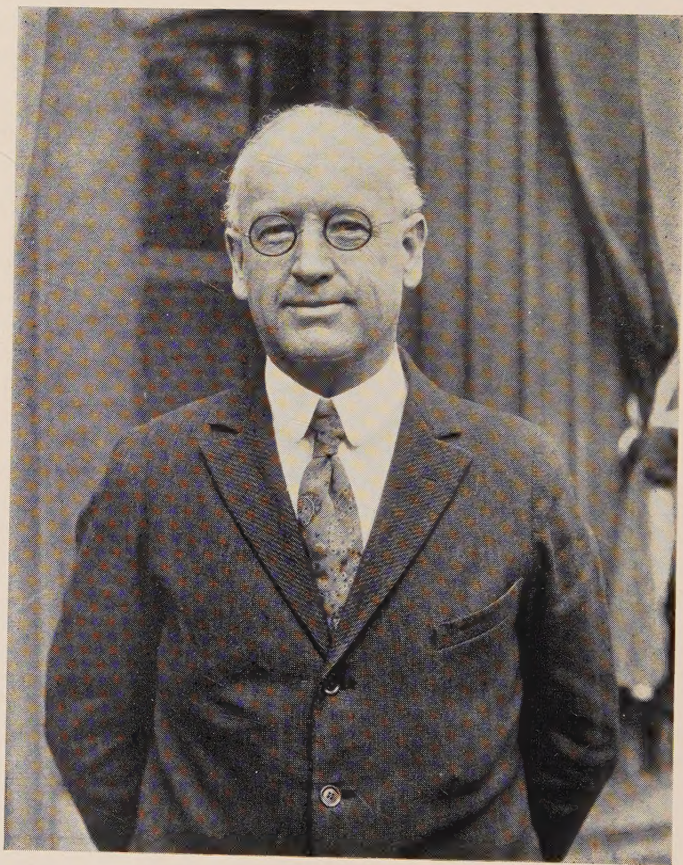
Vol. II. Persistence of Plants in unglaciated Areas of Boreal America,
by M. L. Fernald, 102 pages. Aug. 1925. \$2.00.

Gray Herbarium of Harvard University, Cambridge, Mass.

Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3/4 in. 1 year \$4.00, 6 months \$2.50.



Digitized by the Internet Archive
in 2023 with funding from
Kahle/Austin Foundation



Sincerely,
F. W. Lambert

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 34.

March, 1932.

No. 399.

FRED DAYTON LAMBERT

CLARENCE HINCKLEY KNOWLTON

(With portrait)

ON Saturday morning, February 21, 1931, Fred Dayton Lambert died quietly, seated at his office table, at Tufts College.

Dr. Lambert was born in Muscatine, Iowa, October 28, 1871, the son of Daniel M. Lambert and Ellen (Scudder) Lambert. He had a perfectly natural boyhood in a Mississippi river town. He described his youthful experiences there as closely parallel to those of Tom Sawyer and Huckleberry Finn. He swam in the river, angled for catfish, built and navigated rafts, hunted game and did all the other things which were interesting to boys in those days. He always declared that no man could have had a more perfect boyhood.

After graduating from high school he came east and entered Tufts College. He was poorly prepared, and hardly knew what college was for at first, but he observed everyone and everything, read profusely, participated in athletics, and was generally active. His class standing was so poor, however, that he was very nearly dropped from college. He often said jokingly that if he had not come from such a distance he would have been dropped at once, but that Iowa looked well in the college catalogue, and so he was allowed to remain and prove his ability. His second year started in much the same way, till Professor John Stirling Kingsley of the Biological Department discovered that the young lad could draw, and set him to work. From this time on young Lambert developed an ever-increasing interest in science, especially biology, with a happy effect on his academic standing, for he graduated as a member of Phi Beta Kappa

in 1894. Many a luckless freshman in after years was saved for a time at least by this example of Lambert. The question of dropping the student would come up in faculty meeting, and after discussion of the case some one was sure to remark, "There was Lambert's case, too. Why not give the boy another chance?"

Lambert had become a laboratory assistant before his undergraduate days were over, and he continued in this work while he was getting his Master's and Doctor's degrees, the latter being conferred on him in 1897. Following this he taught science in Edward Little High School at Auburn, Maine. Except for one lone sabbatical year this was his only year away from Tufts College. He had made himself so useful to Professor Kingsley and others that he was wanted again at his Alma Mater, and he returned there as instructor in Natural History. Promoted from time to time he became Professor of Botany in 1913, a position he held to the end.

In 1903 Professor Lambert was married to Mary Anna Ingalls of Auburn, Maine. She had been one of his students in biology at Tufts, where she graduated, and had full appreciation of his problems. They had one daughter, Elizabeth Allen, who inherits her father's gift for drawing, and is now a student at the School of the Museum of Fine Arts in Boston. The home life was very happy. The good professor's whimsicalities had full play here, a blessed relief from class-room routine. Both the Lamberts were intensely interested in the college life about them, and the Professor liked to feel that the home was a part of his equipment as a teacher, an additional means for friendly contacts with his students. As Mrs. Lambert says, "He often said he wanted to be able always to send a student to his home at the necessary psychological moment, and to feel sure that the student would find some one there to welcome him or her. He was never so happy as when he was the genial host at his own fireside to hungry boys and girls away from home. Only the limitation of a small salary saved his home from becoming a clubhouse. Many a graduate in after years has said 'I shall never forget photosynthesis and respiration—and the good meals at your home.'" Another original way in which he helped students was by the gift of certain secondhand books, which he kept till the right moment, when the student was ready for just that sort of inspiration.

For Professor Lambert was fated to be a teacher. Caught in a rapidly growing small college, with increasing throngs of "good

students, poor students and pre-medics." there was little chance for research, but an ever-increasing burden of lectures, quizzes and examinations. And he rose nobly to these obligations. He never wrote out his lectures, but varied them from year to year, watching the reactions and interests of his classes. He was stimulating, interesting, amusing, popular in the right sense of the word, and he laid a good foundation for further work in his science, as those of his students who have gone on to graduate work have discovered.

His first qualification for successful teaching was an abiding and ever-increasing love of his subject. Although he had taught the elementary facts of botany and biology to class after class he never lost his zeal and interest in presenting them to new groups of young people. The secret of his perpetual zest in the personal enjoyment of his subject lay in his strong sense of the dramatic. All the processes of nature were to him each day a wonderful new performance, the like of which had never been imagined or seen before. He studied constantly to perfect his teaching technique, to make his material vivid and comprehensible, for each student was to him as much of a marvel as a plant or any other organism, and was therefore deserving of his best energies.

Another outstanding qualification was his ability to draw. He was rather skeptical about the pedagogical value of lantern slides, but blackboard drawings were his specialty. As one of his recent assistants, Mr. Kendall W. Foster, has written me, "Whenever he wished to drive home an important yet complicated life history he always used colored chalk. Never pausing in his talk he would draw step by step clear-cut diagrams to illustrate the important structures, magnifying certain parts, and drawing and showing by guide-lines and pointing hands how each diagram was related to the preceding one. All the parts of these drawings he labelled beautifully with printing which all his students emulated but never excelled. The homologous structures were shaded in like colors, and at the end of the lecture the whole story was before the student on the blackboards. Beautifully executed colored charts pertinent to the subject hung in profusion not only in the lecture room but in the laboratory, and were mute witnesses to days of painstaking labor on the part of the professor."

Dr. Lambert's interest in the laboratory was another index of success. He always planned to be present during the laboratory

period himself, no matter how many assistants he had. Here also he emphasized correct drawing as the best way to ensure accurate painstaking observation. If a student saw the thing correctly, he would draw it correctly and remember it afterward, in its right relations. He insisted on proper focussing of the microscope as the prime essential before observations were made. His presence in the laboratory made it possible for him to supervise the work, as well as to exert a wonderful personal influence on the students themselves. In his class record-book was written this quotation from Emerson, "I am impressed with the fact that the greatest thing a human soul ever does in this world is to see something and tell what it saw, in a plain way. Hundreds of people can talk for one who can think, but thousands can think for one who can see. To see clearly is poetry, philosophy and religion in one."

We might speak of Dr. Lambert as dynamic, but he was more than that—he was a living human dynamo. This is shown especially in the apt analogies he selected to make difficult points vivid. To quote again from Mr. Foster, "When the students were studying the plant cell they were given among other material the inner epidermis of the onion bulb scale. These cells show but slight differences in the indices of refraction of their parts, and require careful study on the part of the elementary student if he is to visualize correctly the proportions and relations of their parts. Dr. Lambert, in order to emphasize the thinness of the layer of cytoplasm, would compare the cell to the laboratory room; the brick wall, ceiling and floor representing the walls of a cell, the air within the room representing the contents of the cell vacuole, and the coat of paint on the wall representing the cytoplasm. His descriptions were always acted out while he was talking. He would dip an imaginary brush in an imaginary bucket of paint and wave it over the walls as he talked about the paint on the walls being comparable in relative thickness to the layer of streaming cytoplasm in the onion cell. In studying the root of the radish seedling, the relation of the root-hair to the epidermal cell of the root seems hard for the average student to grasp. At the proper time Dr. Lambert would ask the class to rest their eyes for a moment, and then would tell them that the root-hair and epidermal cell were related to one another much as the laboratory room was related to the long corridor which opened into one side of it. While talking he would walk around the room and tell them he was in the

vacuole of the epidermal cell and could pass out into the corridor without obstruction just as any portion of the cell sap of the epidermal cell could pass out into the root-hair. He would often tell the class that when he was studying a plant cell under the microscope he always imagined himself inside of it, feeling of the cytoplasm, grasping hold of the nucleus, and pulling at the cytoplasm to see if it would stretch."

With such unusual and effective ways of presenting his subject matter, it is not strange that his examinations and tests were also unique. Mere learning and reciting did not satisfy the Professor unless the student grasped the underlying principles and relationships. After lecturing on the various transformations of energy involved in plant and animal physiology he would ask the question, "What relation, if any, does energy bear to the writing of this examination? Discuss." He would expect the student to get the point that sunlight furnishes the energy, etc. Another favorite question was "What is the relation between chlorophyll and chloroplast?" As each laboratory period closed with a short quiz, there was opportunity for many of these "think" questions, as Dr. Lambert called them. During the last year of his teaching one of his elementary students bewailed to the Dean that she could not excel in answering this type of question. "But," she admitted, "the Professor is always fair." More than this he was friendly, enthusiastic, inspirational, with deep human interest in his students and in his friends.

In recommending students for graduate work, Professor Lambert was not satisfied with clear seeing and correct delineation, important as he rated them in his laboratory work. He felt that the student must have imagination and the right background of inheritance to make a success in advanced biological research. He showed equal care when he was asked for advice in the choice of other vocations.

No story of his life would be complete without an account of his summers at South Harpswell, Maine. Dr. Kingsley, his senior at Tufts, was early imbued with a desire to start a biological station for research somewhere north of Woods Hole, as a means of stimulating graduate work in zoology and botany. So, in 1898, Dr. Lambert was sent out scouting for a suitable location, not too far from large towns, but close by the sea, and with fishermen living near to co-operate in bringing in marine material. Such a place was soon found at South Harpswell. Dr. Lambert won the confidence of the

local people by his genial, open-hearted ways, and when the little group of biological students arrived somewhat later they were received most cordially by the villagers. The station was carried on for some years by Tufts College, but in order to get more support it seemed best to incorporate it separately and in 1921 it was moved to Mt. Desert, where it still exists as the Mt. Desert Island Biological Laboratory.

Dr. and Mrs. Lambert had formed so many ties with South Harpswell that they continued to make it their summer home. Here the genial Doctor was able to relax, wear old clothes, live in the open, build up his health and fraternize with the village people. As his friend, Mr. Charles Bullard, has written me, "Here it was that his human and democratic side could be seen to advantage. His sympathies and helpfulness were much appreciated among the fisher folk. He was friend to all of them who lived about the cove at the camp." The relationship grew to mutual advantage in the course of time, for Dr. Lambert set up a laboratory of his own, where he prepared material for his teaching, and for other institutions as well. Inexhaustible supplies of marine life were brought in by the fishermen in perfectly fresh condition for the most delicate research, and were preserved for shipment to many different laboratories. A favorite pastime with the good Doctor was to jest with the fishermen, already considerably mystified, about the purposes for which this material was intended, and about the immense profits in the business.

The first few years the camp was in tents, and meals were eaten outdoors. Then a small and comfortable cabin was built, and some time later a small laboratory, with plenty of north light, was made for microscopic work, especially for studies on the green algae. This proved a great convenience.

The greatest friendship of Dr. Lambert's life was that with Frank Shipley Collins, who came to the Laboratory at South Harpswell for the purpose of using it as a center from which to collect the marine algae of Casco Bay. Each was a man with great charm of personality; together they complemented each other, and a perfect friendship was the result. Mr. Collins interested Dr. Lambert in the green algae, and for years many happy hours were spent together in study, especially while Mr. Collins was preparing his work on the group. The drawings for this, with the exception of two by Dr. Kingsley, were prepared by Dr. Lambert. The sudden death of Mr. Collins

in 1920 was a great blow, and led to many changes in the life at South Harpswell, where a visit from Mr. Collins was a regular event, as well as at the winter home, for every holiday and week-end was usually spent by the two men in the study of algae.

In 1910-1911 Dr. Lambert had leave of absence, and went to Europe with Mrs. Lambert. He went first to the University of Freiburg, where at the suggestion of Mr. Collins he studied the green algae for five months with Friedrich Oltmanns. The pride of Dr. Lambert's life was a paper "On the Structure and Development of *Prasinocladus*" prepared at the invitation of Dr. Hans Kniep, and published in 1930 in *Zeitschrift für Botanik*, Dr. Oltmanns' Festschrift number. The following five months were spent most enjoyably at the Naples Zoological Station in Italy, also in research on the green algae. It was here that he made the studies for the paper on *Prasinocladus*.

Dr. Lambert was a member of the Botanical Society of America, the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the Boston Society of Natural History, and he had a lifelong interest in his college fraternity, Delta Tau Delta. In 1905 he was elected a member of the New England Botanical Club, an association which proved most congenial to him. Even after failing health caused him to give up other outside activities, he kept an active interest in this Club, and attended his last meeting the very month of his death. He served for three years as President, and held other offices, but his most conspicuous service to the Club was his twenty-four years as a member of the program committee. He looked on the Club as a sort of clearing-house for all New England botanists, and while not overlooking or undervaluing local talent, he kept a keen eye out for speakers who represented colleges and institutions outside the Boston district. He would write a most delightfully persuasive letter to some non-resident botanist, follow it up with two or three more, and almost always he secured his program speaker. He sought also to have the program well-balanced, with papers on cryptogams as well as on the flowering plants, and not neglecting plant physiology, plant pathology, ecology and other branches of botanical science. After an address, he felt out the sentiment of each meeting, to see if the committee had been wise in its choice of a topic or speaker. His rich and varied experience was a most valuable aid to this work of the Club.

When a man so full of enthusiasm, so essentially vital in every detail of his personality, is taken away, the inadequacy of words becomes manifest. Such a man was Fred Dayton Lambert, professor, scholar, man among men. He was a helper and inspirer of youth, a matchless friend among his peers.

HINGHAM, MASSACHUSETTS.

NOTES ON THE FLORA OF THE MATAMEK RIVER DISTRICT, "NORTH SHORE," QUEBEC, CANADA

PAUL W. BOWMAN

THE Matamek River is a comparatively small stream which empties into the Gulf of St. Lawrence about ten miles east of the mouth of the Moisie River, at a point about three hundred and fifty miles northeast of the city of Quebec. It was the writer's privilege to spend the summer of 1927 on the North Shore at this place. During that time a collection of vascular plants was made which has since been identified and deposited in the Gray Herbarium.¹

A number of these are not included in St. John's² list of the plants of the North Shore and as far as we know none have been collected before from this particular location, so it seems worth while to publish this list with notes on items of particular interest.

Our party left Quebec by the Steamer "North Shore" in the morning of the fifteenth of June and landed at the Matamek in the morning of the seventeenth. We were immediately impressed with the lateness of the season. The air was cold and the vegetation was still dormant. The alders did not bloom until several days after our arrival. The conifers shed their pollen on the third and fourth of July.

Reliable data on the question of pollen distribution by wind are not easy to get so we were quite interested to find that the "dust" which covered the water of the Gulf near the north shore on the twentieth of June consisted of spruce, pine and fir pollen. No other kinds were seen. As these trees did not shed their pollen on our side

¹ A second set of these plants, not quite complete, has been deposited in the National Herbarium and the rest in the Herbarium of The George Washington University.

² *A Botanical Exploration of the North Shore of the Gulf of St. Lawrence Including an Annotated List of the Species of Vascular Plants* by HAROLD ST. JOHN. Canada Department of Mines Memoir 126, No. 4 Biological Series. Ottawa, 1922.

of the Gulf until at least twelve days later it seems that the material we collected must have been carried from the south shore, about sixty-five miles away at its nearest point, by a southeast wind which had been blowing for several days.

The season advanced with amazing rapidity. By the end of August the birch leaves had turned yellow and started to fall. It was reported that a killing frost usually occurs before the first of September, but it did not happen so that year. The days of the growing season, though few, are very long, and areas exposed to the sun get quite hot.

As one looks inland from the steamer approaching the shore a series of hills is seen which rise successively higher toward the interior. West of the Matamek there is a series of sandy terraces. The Moisie River, near its mouth, has cut a channel through sticky gray clay which is exposed in steep, slippery banks seventy-five to a hundred feet high. This same material was found as the substratum of some peat bogs east of the Matamek.

Some of the people who live along the coast keep cattle, but there is not enough grass for them and hay is brought by boat from Quebec. This, we believe, explains the presence of the common weeds from farther south which are to be found around the settlements, particularly near the stables.

We gratefully acknowledge the kindness of Mr. Copley Amory of Washington whose interest in biology led him, upon the recommendation of Dr. Paul Bartsch of the Smithsonian Institution, to take us to his estate on the Matamek River and to make it possible to botanize there for a summer. Mr. Amory provided facilities for getting about and sometimes took us himself on excursions to places which we would not otherwise have reached. The necessary equipment was provided by The George Washington University. The following collection of vascular plants represents part of our work there during that time. We wish also to acknowledge the assistance of Dr. M. L. Fernald who identified the species of sedges for us and checked our determinations of the remaining spermatophytes, and Mr. C. A. Weatherby who identified some of the pteridophytes and checked the rest.

In the list which follows the items preceded by an * were not included by St. John in his list of the vascular plants of the North Shore. In the cases where the plant in question was listed under another name a statement is made to that effect.

WOODSIA ILVENSIS (L.) R. Br. Among rocks along the Moisie.

*THELYPTERIS SPINULOSA (O. F. Muell.) Nieuwl., var. AMERICANA (Fisch.) Weatherby. St. John lists the species, but not the variety.

THELYPTERIS PHEGopteris (L.) Slosson.

*ATHYRIUM ANGUSTUM (Willd.) Presl. Plentiful in cold, wet ravine at Moisie portage. St. John lists the var. RUBELLUM, but not the species.

ATHYRIUM ANGUSTUM (Willd.) Presl, var. RUBELLUM (Gilbert) Butters.

POLYPODIUM VIRGINIANUM L. Occasional on rocks along the Matamek.

OSMUNDA CLAYTONIANA L. On bank of the Matamek.

EQUISETUM ARVENSE L. On clay bank of the Moisie.

EQUISETUM SYLVATICUM L., var. PAUCIRAMOSUM Milde. In wet places.

EQUISETUM LIMOSUM L. In the Matamek below second falls.

LYCOPODIUM ANNOTINUM L.

LYCOPODIUM ANNOTINUM L., var. PUNGENS (LaPylaie) Desv.

LYCOPODIUM CLAVATUM L.

LYCOPODIUM CLAVATUM L., var. MEGASTACHYON Fern. & Bissell.

*LYCOPODIUM CLAVATUM L., var. TRISTACHYUM Hook.

LYCOPODIUM OBSCURUM L., var. DENDROIDEUM (Michx.) D. C. Eaton.

LYCOPODIUM COMPLANATUM L.

*LYCOPODIUM SABINAEFOLIUM Willd., var. SITCHENSE (Rupr.) Fern.

PINUS BANKSIANA Lamb. Common on open, sandy plains.

LARIX LARICINA (DuRoi) Koch. Occasional.

PICEA MARIANA (Mill.) BSP. Common. This, along with Abies, formed the forest.

ABIES BALSAMEA (L.) Mill. Common.

JUNIPERUS COMMUNIS L., var. MONTANA Ait. Common, creeping over rocks in exposed places.

SPARGANIUM ANGUSTIFOLIUM Michx. In Matamek below second falls.

*POTAMOGETON OAKESIANUS Robbins. In small pond along shore.

POTAMOGETON EPIHYDRUS Raf. In Matamek.

ZOSTERA MARINA L., var. ANGUSTIFOLIA Hornem. In brackish water at head of small bay.

SCHUCHZERIA PALUSTRIS L., var. AMERICANA Fern. In shallow pond near the shore. St. John lists the species. Fernald (RHODORA 25: 178. 1923) classifies the American as var. americana.

HIEROCHLOË ODORATA (L.) Wahlenb., var. FRAGRANS (Willd.) Richter. Along edge of brackish marsh.

PHLEUM PRATENSE L. In clearing near stable.

*AGROSTIS HYEMALIS (Walt.) BSP. In clearing along Moisie beach. St. John lists only the var. GEMINATA.

AGROSTIS HYEMALIS (Walt.) BSP., var. GEMINATA (Trin.) Hitchc. On open hillside.

CALAMAGROSTIS CANADENSIS (Michx.) Beauv., var. ACUMINATA Vasey. Common on sandy shore and open hillside.

*TRisetum SPICATUM (L.) Richter, var. MOLLE (Michx.) Beal. On exposed hillside and along rocky shore. St. John lists two other varieties.

DESCHAMPSIA FLEXUOSA (L.) Trin. In clearing along Moisie beach.

POA EMINENS J. S. Presl. On small island near shore.

POA PALUSTRIS L. In clearing near house.

POA PRATENSIS L. Along rocky shore and on small island.

PUCCINELLIA PAUPERCUA (Holm) Fern. & Weathb., var. ALASKANA (Scrib. & Merr.) Fern. & Weathb. On sandy shore.

FESTUCA RUBRA L. Near mouth of Matamek.

BROMUS CILIATUS L. On sandy shore.

ELYMUS ARENARIUS L., var. VILLOSUS E. Mey. On sandy shore.

SCIRPUS RUBROINCTUS Fernald. On clay bank along Moisie.

*SCIRPUS CAESPITOSUS L., var. CALLOSUS Bigel. Over sphagnum bog. St. John's record of the species doubtless belongs to the variety.

ERIOPHORUM SPISSUM Fernald. Over sphagnum bog. This is the plant called *E. callitrix* in Gray's manual.

ERIOPHORUM VIRGINICUM L. Over sphagnum bog.

RHYNCHOSPORA ALBA (L.) Vahl. In scattered patches over sphagnum bog.

CAREX CANESCENS L. Tufts in sand near mouth of Matamek and around sphagnum bog. St. John says of this: "Recorded from St. Paul by W. A. Stearns (S¹) probably is one of the following varieties," and then lists var. *sublobiacea* Laestad. and var. *disjuncta* Fern.

*CAREX BRUNNESCENS Poir., var. SPHAEROSTACHYA (Tuck.) Kükenthal. Near mouth of Matamek. St. John lists the species but not the variety.

CAREX GLAREOSA Wahl., var. AMPHIGENA Fern.

CAREX STIPATA Muhl. Clay bank along Moisie.

CAREX PAUPERCUA Michx. Along rocky shore.

CAREX RARIFLORA Sm. In brackish swamp.

*CAREX ROSTRATA Stokes. In shallow pond near coast. St. John lists var. *utriculata* (Boott) Bailey, but not the species.

CAREX AENEAE Fernald.

CALLA PALUSTRIS L. In small pond surrounded by sphagnum.

JUNCUS BALTICUS Willd., var. LITTORALIS Engelm. Common around brackish marshes.

JUNCUS BREVICAUDATUS (Engelm.) Fern. In wet place.

*VERATRUM VIRIDE Ait. This was seen only in a moist, shady location along the Moisie.

CLINTONIA BOREALIS (Ait.) Raf. A common plant of the moist woods.

SMILACINA STELLATA (L.) Desf. Occasional along sandy shore.

SMILACINA TRIFOLIA (L.) Desf. Found in wet sphagnum along the edge of a small bog.

STREPTOPUS ROSEUS Michx. Occasional in moist woods.

IRIS VERSICOLOR L.

IRIS SETOSA Pall., var. CANADENSIS Foster. Some clumps of these were seen growing side by side on the sandy shore just behind the high-tide line. Some sterile plants of *I. versicolor* with leaves four to five feet tall were found in a wet place along the Matamek.

HABENARIA DILATATA (Pursh) Gray. A fine stand of this was found in a wet place at the foot of a slope.

HABENARIA OBTUSATA (Pursh) Richards. Occasional in woods.

SPIRANTHES ROMANZOFFIANA Cham. Occasional in moist, open places.

EPIPACTIS REPENS (L.) Crantz, var. OPHIOIDES (Fern.) A. A. Eaton. Occasional in moist woods.

LISTERA CORDATA (L.) R. Br. Scarce in moist woods.

SALIX LUCIDA Muhl. On river banks, Matamek and Moisie.

SALIX HUMILIS Marsh. Along Matamek.

SALIX PELLITA Anderss. Along Matamek and on sand bar in Moisie.

POPULUS TREMULOIDES Michx. A common tree of open sandy places.

MYRICA GALE L. Occasional in rocky places.

BETULA PAPYRIFERA Marsh., var. CORDIFOLIA (Regel) Fern. Common. St. John lists this as *B. alba* L., var. *cordifolia* (Regel) Fern.

ALNUS CRISPA (Ait.) Pursh, var. MOLLIS Fern. In open, wet places.

GEOCAULON LIVIDUM (Rich.) Fern. Found once, among scattered trees on plain. St. John lists this as *Comandra livida* Rich.

RUMEX OCCIDENTALIS Wats. Occasional near shore.

RUMEX ACETOSELLA L. Common near houses.

SAGINA NODOSA (L.) Fenzl. Common on rocky shores.

ARENARIA LATERIFLORA L., var. ANGUSTIFOLIA (Regel) St. John. In open sandy places.

*STELLARIA GRAMINEA L. In clearing near stable.

NYMPHOZANTHUS VARIEGATUS (Engelm.) Fern. In the Matamek.

RANUNCULUS CYMBALARIA Pursh. Common on wet, sandy banks around small bays where water is brackish.

RANUNCULUS PENNSYLVANICUS L. f. One specimen found on east bank of Moisie.

RANUNCULUS ACRIS L. Collected in clearings.

THALICTRUM POLYGAMUM Muhl. Found along rivers.

CALTHA PALUSTRIS L. Wet place at foot of slope near springs.

COPTIS TRIFOLIA (L.) Salisb. Common in moist woods.

CORYDALIS SEMPERVIRENS (L.) Pers. Single plant collected from rocks along Matamek.

CAPSELLA BURSA-PASTORIS (L.) Medic. Grows abundantly in sand near stable.

BRASSICA ARVENSI (L.) Ktze. Collected near stable.

- **ERYSIMUM CHEIRANTHOIDES* L. On bank of Matamek near houses.
BARBAREA ORTHOCERAS Ledeb. In little meadow along shore.
SARRACENIA PURPUREA L. Common in sphagnum bogs.
DROSERANGLICA Huds. Common in sphagnum bogs.
DROSERALONGIFOLIA L. Common in sphagnum bogs.
SEDUM ROSEUM (L.) Scop. Occasional among rocks along shore.
MITELLA NUDA L. Common in moist woods along the Moisie.
RIBES HIRTELLUM Michx. Occasional along rocky shore. Berries up to 15 mm. in diameter and of a good flavor.
RIBES LACUSTRE (Pers.) Poir. Occasional in wet woods inland. Berries good, up to 8 mm. in diameter.
RIBES PROSTRATUM L'Her. Occasional on rocky shore and along Matamek.
SPIRAEA LATIFOLIA Borkh., var. *SEPTENTRIONALIS* Fern. Occasional in rocky places.
PYRUS AMERICANA (Marsh.) DC. Occasional in open woods.
AMELANCHIER BARTRAMIANA (Tausch) Roem. Common in open woods. The fruits become mushy and sweet when ripe and are eaten.
FRAGARIA VIRGINIANA Duchesne, var. *TERRAE-NOVAE* (Rydb.) Fern. & Wieg. This plant was very well established in an open, sandy place and produced fine berries in abundance.
POTENTILLA MONSPELIENSIS L. One plant collected in clearing near house.
POTENTILLA PALUSTRIS (L.) Scop. Common in marsh.
POTENTILLA TRIDENTATA Ait. Very common on rocky shore.
POTENTILLA PACIFICA Howell. Common on brackish shores.
RUBUS IDAEUS L., var. *CANADENSIS* Rich. Occasional along Matamek.
RUBUS CHAMAEMORUS L. Common on sphagnum bogs. The fruits are known locally as Margot berries and are gathered in quantity for food. When ripe they are sweet and insipid, but if gathered while still hard they can be made into preserves with a fine spicy flavor.
SANGUISORBA CANADENSIS L. Common along rivers.
PRUNUS PENNSYLVANICA L. f. Occasional in open woods.
TRIFOLIUM REPENS L. In clearing near house.
**TRIFOLIUM AGRARIUM* L. In clearing near stable.
VICIA CRACCA L. In clearing near village.
LATHYRUS MARITIMUS (L.) Bigel. Common on sandy shore.
LATHYRUS PALUSTRIS L., var. *PILOSUS* (Cham.) Ledeb. Occasional on sandy shore.
OXALIS MONTANA Raf. Found once, in moist woods.
CALLITRICHE PALUSTRIS L. Occasional in shallow pools.
EMPETRUM NIGRUM L. Very common in open places.
NEMOPANTHUS MUCRONATA (L.) Trel.
ACER SPICATUM Lam. Occasional in moist woods.
VIOLA PALLENS (Banks) Brainerd. Common in moist open places.
VIOLA INCOGNITA Brainerd. In moist woods.

EPILOBIUM ANGUSTIFOLIUM L. Common on open hillsides.

EPILOBIUM PALUSTRE L., var. LONGIRAMEUM Fern. & Wieg. On small island near shore.

*EPILOBIUM GLANDULOSUM Lehm., var. OCCIDENTALE (Trel.) Fern. On bank of the Moisie. St. John lists the species but not the variety.

EPILOBIUM HORNEMANNI Reich. Occasional in wet places.

*OENOTHERA MURICATA L. A single plant was found on the clay bank of the Moisie.

CIRCAEA ALPINA L. In cold wet ravine along Moisie.

ARALIA HISPIDA Vent. Single plant collected on sandy plain.

ARALIA NUDICAULIS L. Occasional in woods.

LIGUSTICUM SCOTHICUM L. In wet place at head of small bay.

HERACLEUM LANATUM Michx. On sandy shore at edge of woods. Plants numerous where found.

CONIOSELINUM CHINENSE (L.) BSP. Occasional in wet places.

CORNUS CANADENSIS L. Very common in open places.

CORNUS STOLONIFERA Michx. Occasional in woods along Matamek.

MONESSES UNIFLORA (L.) Gray. Occasional in deep woods.

PYROLA SECUNDA L., var. OBTUSATA Turcz. In moist woods.

*PYROLA CHLORANTHA Sw. In woods. St. John says of the previous collections: "There is some confusion here, but the record seems likely."

MONOTROPA UNIFLORA L. One clump was found in dense spruce forest.

MONOTROPA HYPOPITYS L. One clump of this was found near *M. uniflora*.

LEDUM GROENLANDICUM Oeder. Common in open places.

RHODODENDRON CANADENSE (L.) BSP. Common in open places.

KALMIA ANGUSTIFOLIA L. Common in open places.

KALMIA POLIFOLIA Wang. Common in wet places and over sphagnum bogs.

ANDROMEDA GLAUCOPHYLLA Link. Common over sphagnum bogs, sometimes growing out into small pools.

CHAMAEDAPHNE CALYCVLATA (L.) Moench. Common on sphagnum bogs.

CHIOGENES HISPIDULA (L.) T. & G. Common in woods.

VACCINIUM PENNSYLVANICUM Lam. Common in open places and at edges of woods. This plant produces edible berries up to 1 cm. in diameter in great abundance.

VACCINIUM ULIGINOSUM L., var. ALPINUM Bigel. Common in open places, sometimes flat and spreading over exposed rocks. Its ovoid berries, which usually occur singly are found up to 1 cm. in length. St. John lists this as *V. uliginosum* L.

VACCINIUM VITIS-IDAEA L., var. MINUS Lodd. Very common in open places, sometimes forming dense mats of considerable extent. The berries are produced in crowded clusters and attain a diameter of 1 cm. The berries which remain on the plants over winter get soft and sweet, and are eaten raw or made into preserves.

VACCINIUM OXYCOCCUS L. Common in moist open places, especially over sphagnum bogs. The berries are good, but are small and occur singly.

PRIMULA LAURENTIANA Fernald. Found once along shore. St. John lists this under *P. farinosa*, vars. *macropoda* and *incana*.

TRIENTALIS BOREALIS Raf. Common.

GLAUX MARITIMA L., var. OBTUSIFOLIA Fern. On brackish mud.

MERTENSIA MARITIMA (L.) S. F. Gray. On sandy shore.

MELAMPYRUM LINEARE Lam. Along rocky shore.

UTRICULARIA CORNUTA Michx. In shallow pools on sphagnum bog.

PLANTAGO JUNCOIDES Lam., var. GLAUCA (Hornem.) Fern. Common on rocky shore.

GALIUM TRIFIDUM L., var. HALOPHILUM Fern. & Wieg. Under shrubs on brackish shore.

DIERVILLA LONICERA Mill. On rocky hillside.

LONICERA VILLOSA (Michx.) R. & S. On rocky shore. Listed by St. John as *L. caerulea* L., var. *villosa* (Michx.) T. & G.

LINNAEA BOREALIS L., var. AMERICANA (Forbes) Rehder. Common in woods and shady places.

VIBURNUM PAUCIFLORUM Raf. Common at edge of woods.

*SAMBUCUS RACEMOSA L.

CAMPANULA ROTUNDIFOLIA L. Common along rocky shore.

*EUPATORIUM MACULATUM L., var. FOLIOSUM (Fern.) Wieg. On rocks along the Matamek.

SOLIDAGO LEPIDA DC., var. ELONGATA (Nutt.) Fern. Along the Moisie.

SOLIDAGO MACROPHYLLA Pursh. Among rocks along Matamek and on clay bank of the Moisie.

SOLIDAGO MACROPHYLLA Pursh, var. THYRSOIDEA (Mey.) Fern. In clearing along shore.

SOLIDAGO GRAMINIFOLIA (L.) Salisb. On clay bank of the Moisie.

ASTER NEMORALIS Ait. Along rocky shore.

ASTER FOLIACEUS Lindl. On rocky hillside.

ANAPHALIS MARGARITACEA (L.) B. & H., forma ANOCHLORA Fern. On rocky hillside and clay bank of the Moisie. Possibly included by St. John under var. *occidentalis* Greene.

ACHILLEA MILLEFOLIUM L. Common in clearings and along rocky shore.

?ACHILLEA BOREALIS Bongard. In clearing.

*CHRYSANTHEMUM LEUCANTHEMUM L., var. PINNATIFIDUM Lecoq & Lamotte. In clearing near stable.

SENECIO PSEUDO-ARNICA Less. On sandy shore near woods.

TARAXACUM OFFICINALE Weber. In clearing near house.

PRENANTHES RACEMOSA Michx. On rocks along Matamek.

HIERACIUM CANADENSE Michx. In clearing and on open hillside.

THE GEORGE WASHINGTON UNIVERSITY,
Washington, D. C.

A FLORA OF WOODSTOCK, VERMONT.—For a number of years Miss Elizabeth Billings, whose family estate overlooks the village of Woodstock, Vermont, has interested herself in the flora of the region. For eight summers past, she has employed Miss E. M. Kittredge, formerly of the New York Botanical Garden, in collecting and determining specimens. The first result of these activities was an excellent local herbarium. The second now appears in the form of an uncommonly well printed and attractive little pamphlet¹ containing an annotated list of the ferns and flowering plants (grasses and sedges excepted) which occur in a circle of six-mile radius with Woodstock village as center.

In spite of minor idiosyncrasies of scientific punctuation, the list is obviously thorough, careful and conscientious. It covers part of an area of considerable botanical interest, which contains a classical station for a group of those northern calciphiles whose occasional presence distinguishes Vermont among the more southern New England states, and, in addition, more or less outlying localities for a number of other, less remarkable but still noteworthy, boreal species. The list adds several new records of this sort. If any item in it (like *Juncus debilis*, otherwise known in New England only locally in the siliceous southeast) seems doubtful, the doubt can be readily resolved, for each rests upon a specimen in Miss Billings' herbarium.

Such a painstakingly prepared list, supported by a full suite of specimens, has a two-fold value. It furnishes both ballast and propulsive power to the activities of local amateurs and it supplies useful data to students, anywhere, of the details of the distribution of plants. It is a pity, in the present case, that its value in both directions is decreased and that, as an account of a flora, it is thrown off balance, by the exclusion of the *Gramineae* and *Cyperaceae*. However florally inconspicuous—and even that feature, correlated as it is with their habit of wind-pollination, should arouse interest in any intelligent lover of plants—these two groups form a large and important element in the flora of any part of temperate North America. They include, in the Woodstock area, *Leptoloma cognatum*, one of the rarest and geographically most interesting of its species—besides being an excellent example of a tumble-weed. The writer has aided Miss Kittredge in making critical determinations enough to know that they were not neglected in the preliminary collecting and working up of the material for the list. Their final omission is the more difficult to understand; in a work which otherwise maintains a worthy scientific standard, it is an unfortunate anomaly.²

¹ Even the bit of quoted verse prefixed to the foreword tempts one to congratulation. It is unhackneyed and of fine quality. One could be reconciled to the poetical ornament commonly attached to works of popular botany if it were all as good as this.

² KITTREDGE, E. M. *Ferns and Flowering Plants of Woodstock, Vermont*. (With foreword by Elizabeth Billings.) The Elm Tree Press, Woodstock. 1931. 57 pp. 50 cents.

Volume 34, no. 398, including pages 21 to 40, was issued 4 February, 1932.

NOTICE TO SUBSCRIBERS

Subscription revenue covers less than one-half the total cost of publication of RHODORA. The strictest economy will be necessary to permit future publication on the same modest scale as has obtained in recent years.

About one-third of our subscribers file their renewal orders through commercial subscription agencies which habitually deduct 10% from every remittance as a commission.

Many remittances reach the management in the form of drafts or checks which are subject to bank collection and exchange charges of varying amounts, owing to Clearing House rules and depreciated foreign currencies.

Beginning January 1, 1932, the subscription rate to RHODORA will be \$2.00 *net* per annum payable in Boston or New York funds or their equivalent (i. e. drafts or postal money orders which are collectible in Boston at par). All subscription orders from agencies must be accompanied by remittances at the *net* rate without deduction. Hence all subscribers who require the convenience of agency service must regard the subscription rate to RHODORA as \$2.00, plus the charges of agents.

NOTICE TO CONTRIBUTORS

IN accordance with the Editorial Announcement of March, 1931, that RHODORA will follow the provision of the International Rules of Botanical Nomenclature, that the publication of names of new groups will be valid only when they are accompanied by a Latin diagnosis, contributors are notified to see that all new species or other groups proposed by them for publication in RHODORA have Latin diagnoses. If desired by contributors, the Editorial Board of RHODORA will undertake (with charges at cost for matter of considerable length) to have their English diagnoses converted into Latin.

FIELD WORK FOR THE LOCAL BOTANIST

An aid to botanists in studying their local flora. Winter buds, fruits and seeds, how to prepare an herbarium, etc. Price \$1.10, postage paid. **Manual of Farm Grasses** (\$2.00) and **Field Work**, together, \$2.10.

Address: A. S. HITCHCOCK,

1867 Park Road, Washington, D. C.

DUPLICATE BOOKS FOR SALE

- Mohr, C.** Plant Life of Alabama. An account of the distribution, modes of association and adaptations of the flora of Alabama, together with a systematic catalogue of the plants growing in the state. Alabama ed. Montgomery. 8 vo. 1901. pp. 921..... **\$ 3.00**
- Muhlenberg, H.** Catalogus Plantarum Americae Septentrionalis, or a catalogue of the hitherto known native and naturalized plants of North America. Lancaster. 1813. Half leather (binding broken). Rare first edition..... **\$12.50**
- Rafinesque, C. S.** Medical Flora; or, Manual of the medical botany of the United States of North America. Philadelphia. 1828-30. Cloth binding; one volume broken. Now rare..... **\$12.00**
- Sullivant, W. S.** Icones Muscorum, 8 vo., illustrated by numerous copper plates of high excellence (unbound and in sheets). Here offered at a greatly reduced price..... **\$ 6.00**
Supplement to the preceding available only in a few defective copies. Prices on request.

Address Librarian,
GRAY HERBARIUM of HARVARD UNIVERSITY,
Cambridge, Mass.

Early Volumes of Rhodora

A limited number of the earlier volumes can still be supplied. Libraries and other subscribers needing to complete their sets should communicate with LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass.

FIELD AND HERBARIUM EQUIPMENT

HAND LENSES	COLLECTING CASES	PLANT PRESSES
FERN TROWELS	MOUNTING PAPERS	GENUS COVERS
FIELD PICKS	HERBARIUM CASES	FELT DRIERS

Write for free Catalog R-91

CAMBRIDGE BOTANICAL SUPPLY CO.,
Waverly, Mass.